

# Recovery of adrenal function in children with asthma assessed by Low Dose Short Synacthen Test (LDSST)



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## Background:

- ❖ HPA axis suppression is reported in (20-40%) children treated with inhaled corticosteroid (ICS) for asthma<sup>1</sup>
- ❖ Symptomatic adrenal insufficiency is rare but deaths due to adrenal crisis have been reported
- ❖ Little is known about the optimal treatment or recovery of ICS induced HPA axis suppression

## Aim:

- ❖ To describe the outcomes of children with ICS induced HPA axis suppression

## Method:

- ❖ Retrospective observational study
- ❖ Data of children treated with ICS between 2008-2014 were studied
- ❖ Age, ICS dose at the time of LDSST (Beclomethasone equivalent) and the outcome of LDSST were noted
- ❖ Grouping based on peak and basal cortisol levels in *Table-1*
- ❖ Recovery of the HPA axis was assessed from follow-up LDSST results

## Results:

- ❖ Data were available for 113 patients
- ❖ Patient characteristics of the entire group, suboptimal and abnormal group and were described in *Table-2*
- ❖ Outcomes of repeat LDSST were described in *Figure-1*
- ❖ Movement of patients between groups were described in *Table-3*

## Conclusions:

- ❖ Recovery of HPA axis is observed in both suboptimal and abnormal groups
- ❖ Recovery of the HPA axis can occur during daily HC therapy
- ❖ Current treatment strategy appears to be safe and effective

## Reference:

1) Paton et al., Arch Dis Child. 2006;91(10):808-13

Table-1	Cortisol level(nmol/l)	Management
Normal	Peak ≥ 500	No treatment
Sub-optimal	Peak = 350 to 499	'Sick day hydrocortisone' (HC) during illness only
Abnormal	Peak <350, or basal <100 at 9am	Daily HC therapy ± 'Sick day HC'
Sick day Hydrocortisone replacement (20mgs/m <sup>2</sup> /day) during illness Regular Hydrocortisone replacement (5-7.5mgs/m <sup>2</sup> /day)		

Table -2 Patient Characteristics			
Characteristics	Entire group	Suboptimal group	Abnormal group
<b>Total (% of Total)</b>	113	54 (48%)	17 (15%)
<b>Sex (M:F)</b>	74:39	37:17	12:5
<b>Age at first test</b>	10.4 (3.3-16.5)	10.9 (4.7-15.6)	8.6 (3.3-16.5)
<b>F/U period</b>	1.1 (0.0-7.7)	1.8 (0-7.7)	1.2 (0-7.2)
<b>ICS dose at start</b>	800 (100-1000)	800 (200-1000)	800(200-1000)
<b>ICS dose at end</b>	500 (0-2000)	625 (0-2000)	625 (0-1200)
<b>Total LDSST's (average/person)</b>	253 (2.2)	147 (2.7)	52 (3.0)

**Figure-1**

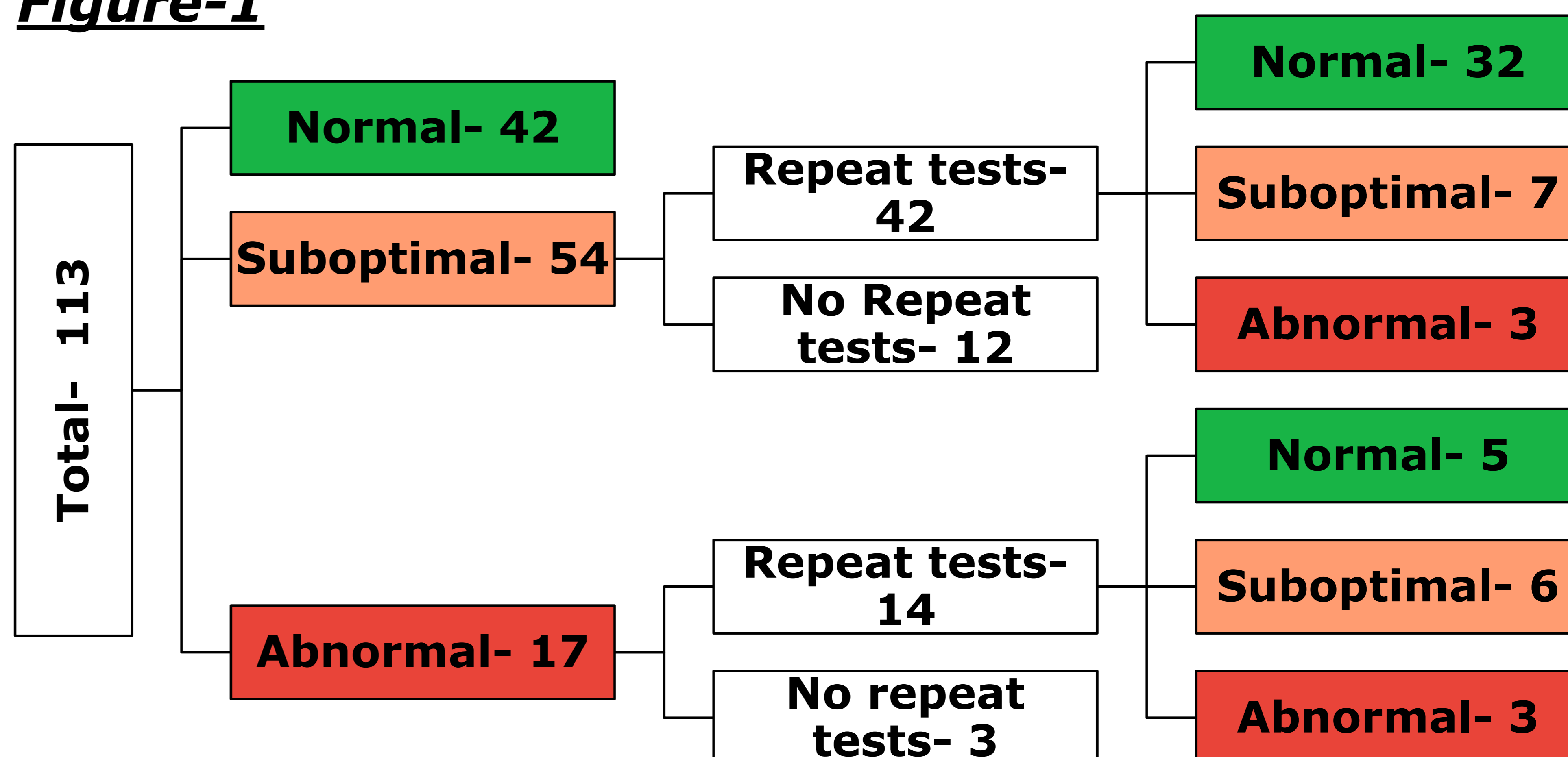


Table-3 Final outcomes [N= 56] (%)	
<b>Normal/Improved</b>	43 (77%)
<b>Remained same</b>	10 (18%)
<b>Worsened</b>	3 (5%)